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1 [Compiler construction: an advanced course](#)

F. L. Bauer, F. L. De Remer, M. Griffiths, U. Hill, J. J. Horning, C. H. A. Koster, W. M. McKeeman, P. C. Poole, W. M. Waite, G. Goos, J. Hartmanis
January 1974 Book

Publisher: Springer-Verlag New York, Inc.

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#)

The Advanced Course took place from March 4 to 15, 1974 and was organized by the Mathematical Institute of the Technical University of Munich and the Leibniz Computing Center of the Bavarian Academy of Sciences, in co-operation with the European Communities, sponsored by the Ministry for Research and Technology of the Federal Republic of Germany and by the European Research Office, London.

2 [Selected writings on computing: a personal perspective](#)

Edsger W. Dijkstra
January 1982 Book

Publisher: Springer-Verlag New York, Inc.

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Since the summer of 1973, when I became a Burroughs Research Fellow, my life has been very different from what it had been before. The daily routine changed: instead of going to the University each day, where I used to spend most of my time in the company of others, I now went there only one day a week and was most of the time that is, when not travelling!-- alone in my study. In my solitude, mail and the written word in general became more and more important. The circumstance that my employe ...

3 [Data base directions: the next steps](#)



John L. Berg

November 1976 **ACM SIGMOD Record**, **ACM SIGMIS Database**, Volume 8, 8 Issue 4, 2

Publisher: ACM Press

Full text available: pdf(9.95 MB)

Additional Information: [full citation](#), [abstract](#), [citations](#)

What information about data base technology does a manager need to make prudent

decisions about using this new technology? To provide this information the National Bureau of Standards and the Association for Computing Machinery established a workshop of approximately 80 experts in five major subject areas. The five subject areas were auditing, evolving technology, government regulations, standards, and user experience. Each area prepared a report contained in these proceedings. The proceedings p ...

Keywords: DBMS, auditing, cost/benefit analysis, data base, data base management, government regulation, management objectives, privacy, security, standards, technology assessment, user experience

4 Classics in software engineering

January 1979 Divisible Book

Publisher: Yourdon Press

Additional Information: [full citation](#), [cited by](#), [index terms](#)



5 Is it live or is it Memorex?



Tory Sawyer, Randy Anderson, Gary McCuaig

September 1986 **Proceedings of the 14th annual ACM SIGUCCS conference on User services: setting the direction SIGUCCS '86**

Publisher: ACM Press

Full text available: [pdf\(2.60 MB\)](#) Additional Information: [full citation](#), [index terms](#)



6 IS '97: model curriculum and guidelines for undergraduate degree programs in information systems



Gordon B. Davis, John T. Gorgone, J. Daniel Cougar, David L. Feinstein, Herbert E. Longenecker

December 1996 **ACM SIGMIS Database , Guidelines for undergraduate degree programs on Model curriculum and guidelines for undergraduate degree programs in information systems IS '97**, Volume 28 Issue 1

Publisher: ACM Press

Full text available: [pdf\(7.24 MB\)](#) Additional Information: [full citation](#), [cited by](#)



7 Special issue: AI in engineering



D. Sriram, R. Joobbani

April 1985 **ACM SIGART Bulletin**, Issue 92

Publisher: ACM Press

Full text available: [pdf\(8.79 MB\)](#) Additional Information: [full citation](#), [abstract](#)

The papers in this special issue were compiled from responses to the announcement in the July 1984 issue of the SIGART newsletter and notices posted over the ARPAnet. The interest being shown in this area is reflected in the sixty papers received from over six countries. About half the papers were received over the computer network.



8 Terrain database interoperability issues in training with distributed interactive simulation



Guy A. Schiavone, S. Sureshchandran, Kenneth C. Hardis

July 1997 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 7 Issue 3

Publisher: ACM Press




Full text available:  [pdf\(443.34 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

In Distributed Interactive Simulation (DIS), each participating node is responsible for maintaining its own model of the synthetic environment. Problems may arise if significant inconsistencies are allowed to exist between these separate world views, resulting in unrealistic simulation results or negative training, and a corresponding degradation of interoperability in a DIS simulation exercise. In the DIS community, this is known as the simulator terrain database (TDB) correlation problem. ...

Keywords: distributed interactive simulation, terrain databases

9 [Survey of expert critiquing systems: practical and theoretical frontiers](#)

 Barry G. Silverman

April 1992 **Communications of the ACM**, Volume 35 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(2.84 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: critics, expert critiquing systems

10 [Fast detection of communication patterns in distributed executions](#)

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research CASCON '97**

Publisher: IBM Press

Full text available:  [pdf\(4.21 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

11 [Human-computer interface development: concepts and systems for its management](#)

 H. Rex Hartson, Deborah Hix

March 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(7.97 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Human-computer interface management, from a computer science viewpoint, focuses on the process of developing quality human-computer interfaces, including their representation, design, implementation, execution, evaluation, and maintenance. This survey presents important concepts of interface management: dialogue independence, structural modeling, representation, interactive tools, rapid prototyping, development methodologies, and control structures. *Dialogue independence* is th ...


12 [Software safety: why, what, and how](#)

 Nancy G. Leveson

June 1986 **ACM Computing Surveys (CSUR)**, Volume 18 Issue 2

Publisher: ACM Press


Additional Information:

Full text available:  pdf(4.18 MB)[full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Software safety issues become important when computers are used to control real-time, safety-critical processes. This survey attempts to explain why there is a problem, what the problem is, and what is known about how to solve it. Since this is a relatively new software research area, emphasis is placed on delineating the outstanding issues and research topics.

**13** [A structural view of the Cedar programming environment](#)


Daniel C. Swinehart, Polle T. Zellweger, Richard J. Beach, Robert B. Hagmann
August 1986 **ACM Transactions on Programming Languages and Systems (TOPLAS)**,
Volume 8 Issue 4

Publisher: ACM PressFull text available:  pdf(6.32 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper presents an overview of the Cedar programming environment, focusing on its overall structure—that is, the major components of Cedar and the way they are organized. Cedar supports the development of programs written in a single programming language, also called Cedar. Its primary purpose is to increase the productivity of programmers whose activities include experimental programming and the development of prototype software systems for a high-performance personal computer. T ...

**14** [Proceedings of the SIGNUM conference on the programming environment for development of numerical software](#)

March 1979 **ACM SIGNUM Newsletter**, Volume 14 Issue 1

Publisher: ACM PressFull text available:  pdf(5.02 MB)Additional Information: [full citation](#)**15** [System-level power optimization: techniques and tools](#)


Luca Benini, Giovanni de Micheli
April 2000 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**,
Volume 5 Issue 2

Publisher: ACM PressFull text available:  pdf(385.22 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This tutorial surveys design methods for energy-efficient system-level design. We consider electronic systems consisting of a hardware platform and software layers. We consider the three major constituents of hardware that consume energy, namely computation, communication, and storage units, and we review methods of reducing their energy consumption. We also study models for analyzing the energy cost of software, and methods for energy-efficient software design and compilation. This survey ...

**16** [Guidance for the use of the Ada programming language in high integrity systems](#)

B. A. Wichmann
July 1998 **ACM SIGAda Ada Letters**, Volume XVIII Issue 4

Publisher: ACM PressFull text available:  pdf(2.93 MB)Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

This paper is the current result of a study by the ISO HRG Rapporteur group which is being circulated for comment. Many people have contributed to this, but those who have either attended two recent meetings of group or have made substantial e-mail comments are: Praful V Bhansali (Boeing, USA), Alan Burns (University of York, UK), Bernard Carre' (Praxis Critical Systems, UK), Dan Craigen (ORA, Canada), Nick Johnson MoD, UK),

Stephen Michell (Canada), Gilles Motet (DGEI/INSA, France), George Roma ...

17 Validation of Scientific Programs



William E. Howden

June 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 2

Publisher: ACM Press

Full text available: [pdf\(2.92 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



18 Concepts and Notations for Concurrent Programming



Gregory R. Andrews, Fred B. Schneider

March 1983 **ACM Computing Surveys (CSUR)**, Volume 15 Issue 1

Publisher: ACM Press

Full text available: [pdf\(4.02 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



19 Technical reports



SIGACT News Staff

January 1980 **ACM SIGACT News**, Volume 12 Issue 1

Publisher: ACM Press

Full text available: [pdf\(5.28 MB\)](#) Additional Information: [full citation](#)



20 Software reuse



Charles W. Krueger

June 1992 **ACM Computing Surveys (CSUR)**, Volume 24 Issue 2

Publisher: ACM Press

Full text available: [pdf\(4.96 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Software reuse is the process of creating software systems from existing software rather than building software systems from scratch. This simple yet powerful vision was introduced in 1968. Software reuse has, however, failed to become a standard software engineering practice. In an attempt to understand why, researchers have renewed their interest in software reuse and in the obstacles to implementing it. This paper surveys the different approaches to software reuse found in the ...

Keywords: abstraction, cognitive distance, software reuse



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21 [Survey of software tools for evaluating reliability, availability, and serviceability](#)



Allen M. Johnson, Miroslaw Malek

September 1988 **ACM Computing Surveys (CSUR)**, Volume 20 Issue 4

Publisher: ACM Press

Full text available: pdf(3.79 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In computer design, it is essential to know the effectiveness of different design options in improving performance and dependability. Various software tools have been created to evaluate these parameters, applying both analytic and simulation techniques, and this paper reviews those related primarily to reliability, availability, and serviceability. The purpose, type of models used, type of systems modeled, inputs, and outputs are given for each package. Examples of some of the key modeling ...

22 [Operating System Structures to Support Security and Reliable Software](#)



Theodore A. Linden

December 1976 **ACM Computing Surveys (CSUR)**, Volume 8 Issue 4

Publisher: ACM Press

Full text available: pdf(3.49 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

23 [Query evaluation techniques for large databases](#)



Goetz Graefe

June 1993 **ACM Computing Surveys (CSUR)**, Volume 25 Issue 2

Publisher: ACM Press

Full text available: pdf(9.37 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Database management systems will continue to manage large data volumes. Thus, efficient algorithms for accessing and manipulating large sets and sequences will be required to provide acceptable performance. The advent of object-oriented and extensible database systems will not solve this problem. On the contrary, modern data models exacerbate the problem: In order to manipulate large sets of complex objects as efficiently as today's database systems manipulate simple records, query-processi ...

Keywords: complex query evaluation plans, dynamic query evaluation plans, extensible database systems, iterators, object-oriented database systems, operator model of parallelization, parallel algorithms, relational database systems, set-matching algorithms, sort-hash duality

24 Assessing process-centered software engineering environments



Vincenzo Ambriola, Reidar Conradi, Alfonso Fuggetta

July 1997 **ACM Transactions on Software Engineering and Methodology (TOSEM)**,
Volume 6 Issue 3

Publisher: ACM Press

Full text available: [pdf\(342.52 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Process-centered software engineering environments (PSEEs) are the most recent generation of environments supporting software development activities. They exploit an representation of the process (called the process model that specifies how to carry out software development activities, the roles and tasks of software developers, and how to use and control software development tools. A process model is therefore a vehicle to better understand and communicate the process. If ...

Keywords: CASE, enabling technology, process modeling languages, process-centered software engineering environments, software process



25 The FINITE STRING Newsletter: Abstracts of current literature

Computational Linguistics Staff

January 1987 **Computational Linguistics**, Volume 13 Issue 1-2

Publisher: MIT Press

Full text available: [pdf\(6.15 MB\)](#) Additional Information: [full citation](#)
[Publisher Site](#)



26 Process migration



Dejan S. Milošević, Fred Douglass, Yves Paindaveine, Richard Wheeler, Songnian Zhou

September 2000 **ACM Computing Surveys (CSUR)**, Volume 32 Issue 3

Publisher: ACM Press

Full text available: [pdf\(1.24 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Process migration is the act of transferring a process between two machines. It enables dynamic load distribution, fault resilience, eased system administration, and data access locality. Despite these goals and ongoing research efforts, migration has not achieved widespread use. With the increasing deployment of distributed systems in general, and distributed operating systems in particular, process migration is again receiving more attention in both research and product development. As hi ...

Keywords: distributed operating systems, distributed systems, load distribution, process migration



27 DISSERTATIONS: ABSTRACTS OF INTEREST



Susanne M. Humphrey, Ben Shneiderman

April 1992 **ACM SIGCHI Bulletin**, Volume 24 Issue 2




Publisher: ACM Press

Full text available:  pdf(2.16 MB) Additional Information: [full citation](#), [abstract](#)

The following abstracts were selected from a computer search using the BRS Information Technologies retrieval services of the Dissertation Abstracts International (DAI) database produced by University Microfilms International. Unless otherwise specified, paper or microform copies of dissertations may be ordered, using the UM order number, from University Microfilms International, Dissertation Copies, Post Office Box 1794, Ann Arbor, MI 488106; telephone for U.S. (except Michigan, Hawaii, or Alaska ...


28 Bibliography of recent publication in computer networking

 July 1989 **ACM SIGCOMM Computer Communication Review**, Volume 19 Issue 3

Publisher: ACM Press

Full text available:  pdf(2.53 MB) Additional Information: [full citation](#), [index terms](#)

29 Architecture of the IBM system/370

 Richard P. Case, Andris Padegs
January 1978 **Communications of the ACM**, Volume 21 Issue 1


Publisher: ACM Press

Full text available:  pdf(2.78 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper discusses the design considerations for the architectural extensions that distinguish System/370 from System/360. It comments on some experiences with the original objectives for System/360 and on the efforts to achieve them, and it describes the reasons and objectives for extending the architecture. It covers virtual storage, program control, data-manipulation instructions, timing facilities, multiprocessing, debugging and monitoring, error handling, and input/output operations. ...

Keywords: architecture, computer systems, error handling, instruction sets, virtual storage

30 Numerical computations: its nature and research directions

 J. R. Rice, C. W. Gear, J. Ortega, B. Parlett, M. Schultz, L. F. Shampine, P. Wolfe, J. F. Traub
February 1979 **ACM SIGNUM Newsletter**, Volume 14 Issue si-1

Publisher: ACM Press

Full text available:  pdf(4.43 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

This report on research in numerical computation is part of the Computer Science and Engineering Research Study (COSERS) which is aimed at technically educated people outside the Computer Science field. This goal led the panel to face many difficult choices between precise, but excessively technical, descriptions and looser, but more accessible expositions. The panel hopes that all readers will keep this in mind.

31 ABSTRACTS OF INTEREST

 Susanne M. Humphrey, Ben Shneiderman
July 1993 **ACM SIGCHI Bulletin**, Volume 25 Issue 3

Publisher: ACM Press

Full text available:  pdf(2.00 MB) Additional Information: [full citation](#), [abstract](#)

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University Microfilms International, Dissertation Copies, Post Office Box 1764, Ann Arbor, MI 488106; telephone for U.S. (except Michigan, Hawaii, or Alas ...

32 Software engineering

B. W. Boehm


January 1979 **Classics in software engineering**

Publisher: Yourdon Press

Additional Information: [full citation](#), [abstract](#), [references](#)


If someone said to me, "I have time to read only one of the papers in your collection," I would recommend this paper by Barry Boehm --- not because it is brilliant (although I think some of Boehm's insights border on brilliance) or because it revolutionized the field (the way some of Dijkstra's papers did), but simply because it is probably the best overall summary of the software field that I have yet seen published. If nothing else, Boehm's bibliography is stupendous, even outdoing the bibl ...

33 Three-dimensional object recognition

 Paul J. Besl, Ramesh C. Jain

March 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 1


Publisher: ACM Press

Full text available:  [pdf\(7.76 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


A general-purpose computer vision system must be capable of recognizing three-dimensional (3-D) objects. This paper proposes a precise definition of the 3-D object recognition problem, discusses basic concepts associated with this problem, and reviews the relevant literature. Because range images (or depth maps) are often used as sensor input instead of intensity images, techniques for obtaining, processing, and characterizing range data are also surveyed.

34 Technical reports

 SIGACT News Staff

April 1981 **ACM SIGACT News**, Volume 13 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(2.64 MB\)](#)


Additional Information: [full citation](#)

35 Information systems curriculum recommendations for the 80s: undergraduate and graduate programs

 Jay F. Nunamaker, J. Daniel Couger, Gordon B. Davis

November 1982 **Communications of the ACM**, Volume 25 Issue 11

Publisher: ACM Press

Full text available:  [pdf\(2.20 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The recommendations of the 1972 and 1973 ACM Curriculum Committee on Information Systems programs have been influential in the development of degree programs at the bachelor's, master's, and doctoral levels. The earlier curriculum has been revised and updated based on advances in the field over the past nine years. The report discusses the continuing need for education related to the definition, analysis, design, construction, and management of information systems in organizations. The stru ...

36 From formal models to formally based methods: an industrial experience

Emanuele Ciapessoni, Piergiorgio Mirandola, Alberto Coen-Porisini, Dino Mandrioli, Angelo Morzenti



January 1999 **ACM Transactions on Software Engineering and Methodology (TOSEM)**,
Volume 8 Issue 1

Publisher: ACM Press

Full text available: [pdf\(239.61 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

We address the problem of increasing the impact of formal methods in the practice of industrial computer applications. We summarize the reasons why formal methods so far did not gain widespread use within the industrial environment despite several promising experiences. We suggest an evolutionary rather than revolutionary attitude in the introduction of formal methods in the practice of industrial applications, and we report on our long-standing experience which involves an academic institut ...

Keywords: formal models, industrial applications, object orientation, specification, supervision and control, technology transfer

37 [The reuse of uses in Smalltalk programming](#)



Mary Beth Rosson, John M. Carroll

September 1996 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 3
Issue 3

Publisher: ACM Press

Full text available: [pdf\(1.02 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Software reuse, a long-standing and refractory issue in software technology, has been specifically emphasized as an advantage of the object-oriented programming paradigm. We report an empirical study of expert Smalltalk programmers reusing user interface classes in small graphical applications. Our primary goal was to develop a qualitative characterization of expert reuse strategies that could be used to identify requirements for teaching and supporting reuse programming. A secondary intere ...

Keywords: Smalltalk, debugging into existence, example-based learning, reuse of uses, usage context

38 [Resources, tools, and techniques for problem based learning in computing](#)



Ainslie Ellis, Linda Carswell, Andrew Bernat, Daniel Deveau, Patrice Frison, Veijo Meisalo, Jeanine Meyer, Urban Nulden, Joze Rugelj, Jorma Tarhio

December 1998 **Working Group reports of the 3rd annual SIGCSE/SIGCUE ITiCSE conference on Integrating technology into computer science education ITiCSE-WGR '98**

Publisher: ACM Press

Full text available: [pdf\(69.36 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

39 [Specification and implementation of exceptions in workflow management systems](#)



Fabio Casati, Stefano Ceri, Stefano Paraboschi, Guiseppe Pozzi

September 1999 **ACM Transactions on Database Systems (TODS)**, Volume 24 Issue 3

Publisher: ACM Press

Full text available: [pdf\(250.40 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Although workflow management systems are most applicable when an organization follows standard business processes and routines, any of these processes faces the need for handling exceptions, i.e., asynchronous and anomalous situations that fall outside the normal control flow. In this paper we concentrate upon anomalous situations that,

although unusual, are part of the semantics of workflow applications, and should be specified and monitored coherently; in most real-life applica ...

Keywords: active rules, asynchronous events, exceptions, workflow management systems

40 Status report of the graphic standards planning committee



Computer Graphics staff

August 1979 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(15.01 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#)

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Relevance scale ☐ ☐ ☐ ☐ ☐

41 [Validation, Verification, and Testing of Computer Software](#)



W. Richards Adrion, Martha A. Branstad, John C. Cherniavsky
June 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 2

Publisher: ACM Press

Full text available: pdf(3.00 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

42 [Resources, tools, and techniques for problem based learning in computing](#)



Ainslie Ellis, Linda Carswell, Andrew Bernat, Daniel Deveau, Patrice Frison, Veijo Meisalo, Jeanine Meyer, Urban Nulden, Joze Rugelj, Jorma Tarhio
October 1998 **ACM SIGCUE Outlook**, Volume 26 Issue 4

Publisher: ACM Press

Full text available: pdf(1.49 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In a problem-based learning (PBL) environment, students work in groups on real-life problems and have the opportunity to determine for themselves what they need to learn in the relevant subject area(s). A common feature of problem-based learning is to provide students with a range of resources that assist them in solving the problems. This paper attempts to classify resources according to the educational functions and activities for which they will be used. It also discusses communication patter ...

43 [Borrowed-virtual-time \(BVT\) scheduling: supporting latency-sensitive threads in a general-purpose scheduler](#)



Kenneth J. Duda, David R. Cheriton

December 1999 **ACM SIGOPS Operating Systems Review , Proceedings of the seventeenth ACM symposium on Operating systems principles SOSP '99**, Volume 33 Issue 5

Publisher: ACM Press

Full text available: pdf(1.81 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Systems need to run a larger and more diverse set of applications, from real-time to interactive to batch, on uniprocessor and multiprocessor platforms. However, most schedulers either do not address latency requirements or are specialized to complex real-

time paradigms, limiting their applicability to general-purpose systems. In this paper, we present *Borrowed-Virtual-Time (BVT) Scheduling*, showing that it provides low-latency for real-time and interactive applications yet weighted sharin ...

44 PACE - a microprogram evaluation system



Robert E. Skibbe

October 1982 **ACM SIGMICRO Newsletter , Proceedings of the 15th annual workshop on Microprogramming MICRO 15**, Volume 13 Issue 4

Publisher: IEEE Press, ACM Press

Full text available: [pdf\(1.05 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes PACE (Product Assurance Code Evaluation) System, a tool for evaluating microprograms. PACE incorporates both static analysis and dynamic analysis capabilities and it provides features that enable systematic and comprehensive evaluations of large-scale microcoded systems. The PACE static analysis capability performs a control flow analysis of the code being evaluated, reports various anomalous program constructs, and generates a program flow graph that is subs ...



45 A predictive metric based on discriminant statistical analysis



Maurizio Pighin, Roberto Zamolo

May 1997 **Proceedings of the 19th international conference on Software engineering ICSE '97**

Publisher: ACM Press

Full text available: [pdf\(1.37 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: experimentations, measurements, metrics, statistical analysis



46 Special issue on knowledge representation



Ronald J. Brachman, Brian C. Smith

February 1980 **ACM SIGART Bulletin**, Issue 70

Publisher: ACM Press

Full text available: [pdf\(13.13 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#)

In the fall of 1978 we decided to produce a special issue of the SIGART Newsletter devoted to a survey of current knowledge representation research. We felt that there were two useful functions such an issue could serve. First, we hoped to elicit a clear picture of how people working in this subdiscipline understand knowledge representation research, to illuminate the issues on which current research is focused, and to catalogue what approaches and techniques are currently being developed. Second ...



47 The Howitzer improvement program: lessons learned



D. Krantz

January 1989 **Proceedings of the conference on Tri-Ada '89: Ada technology in context: application, development, and deployment TRI-Ada '89**

Publisher: ACM Press

Full text available: [pdf\(1.59 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)



48



Curriculum 68: Recommendations for academic programs in computer science: a report of the ACM curriculum committee on computer science

William F. Atchison, Samuel D. Conte, John W. Hamblen, Thomas E. Hull, Thomas A. Keenan,



William B. Kehl, Edward J. McCluskey, Silvio O. Navarro, Werner C. Rheinboldt, Earl J. Scheppe, William Viavant, David M. Young
March 1968 **Communications of the ACM**, Volume 11 Issue 3

Publisher: ACM Press

Full text available:  pdf(6.63 MB) Additional Information: [full citation](#), [references](#), [citations](#)

Keywords: computer science academic programs, computer science bibliographies, computer science courses, computer science curriculum, computer science education, computer science graduate programs, computer science undergraduate programs

49 Status report of the graphic standards planning committee of ACM/SIGGRAPH:
State-of-the-art of graphic software packages



Computer Graphics staff

September 1977 **ACM SIGGRAPH Computer Graphics**, Volume 11 Issue 3

Publisher: ACM Press

Full text available:  pdf(9.03 MB) Additional Information: [full citation](#), [references](#)



50 Computer-music interfaces: a survey



Bruce W. Pennycook

June 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 2

Publisher: ACM Press

Full text available:  pdf(2.04 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This paper is a study of the unique problems posed by the use of computers by composers and performers of music. The paper begins with a presentation of the basic concepts involved in the musical interaction with computer devices, followed by a detailed discussion of three musical tasks: music manuscript preparation, music language interfaces for composition, and real-time performance interaction. Fundamental design principles are exposed through an examination of several early computer mus ...




51 High-performance operating system primitives for robotics and real-time control systems



Karsten Schwan, Tom Bihari, Bruce W. Weide, Gregor Taulbee

August 1987 **ACM Transactions on Computer Systems (TOCS)**, Volume 5 Issue 3

Publisher: ACM Press

Full text available:  pdf(3.49 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

To increase speed and reliability of operation, multiple computers are replacing uniprocessors and wired-logic controllers in modern robots and industrial control systems. However, performance increases are not attained by such hardware alone. The operating software controlling the robots or control systems must exploit the possible parallelism of various control tasks in order to perform the necessary computations within given real-time and reliability constraints. Such so ...



52 Strategic computing at DARPA: overview and assessment



Mark Stefik

July 1985 **Communications of the ACM**, Volume 28 Issue 7

Publisher: ACM Press

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)



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[terms](#)

Strategic Computing, a 10-year initiative to build faster and more intelligent systems, is ambitious, flawed by overscheduling perhaps and problems of definition, but basically sound.

53 Fortran 8X draft



Loren P. Meissner

December 1989 **ACM SIGPLAN Fortran Forum**, Volume 8 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(21.36 MB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Standard Programming Language Fortran. This standard specifies the form and establishes the interpretation of programs expressed in the Fortran language. It consists of the specification of the language Fortran. No subsets are specified in this standard. The previous standard, commonly known as "FORTRAN 77", is entirely contained within this standard, known as "Fortran 8x". Therefore, any standard-conforming FORTRAN 77 program is standard conforming under this standard. New features can b ...

54 A simulation program for anlysis of distributed data base processing concepts



Paul J. Fortier, Patrick Turner

March 1986 **Proceedings of the 19th annual symposium on Simulation ANSS '86**

Publisher: IEEE Computer Society Press

Full text available:  [pdf\(1.01 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: distributed data bases, performance evaluation, query processing/optimization, simulation modelling

55 A study of the applicability of existing exception-handling techniques to component-based real-time software technology



Jun Lang, David B. Stewart

March 1998 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 20 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(220.57 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This study focuses on the current state of error-handling technology and concludes with recommendations for further research in error handling for component-based real-time software. With real-time programs growing in size and complexity, the quality and cost of developing and maintaining them are still deep concerns to embedded software industries. Component-based software is a promising approach in reducing development cost while increasing quality and reliability. As with any other real- ...

Keywords: component-based software, error detection and handling, faults, reconfigurable software, signals, survey, timing and deadline failures

56 Verifying Security



Maureen Harris Cheheyli, Morrie Gasser, George A. Huff, Jonathan K. Millen

September 1981 **ACM Computing Surveys (CSUR)**, Volume 13 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(4.68 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

57 Structured reactive controllers: controlling robots that perform everyday activity

 Michael Beetz

April 1999 **Proceedings of the third annual conference on Autonomous Agents
AGENTS '99**

Publisher: ACM Press

Full text available:  pdf(1.12 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)




58 Automated aids for reliable software

 Donald J. Reifer

April 1975 **ACM SIGPLAN Notices , Proceedings of the international conference on
Reliable software**, Volume 10 Issue 6

Publisher: ACM Press


Full text available:  pdf(1.18 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



Recent investigations on the use of automation to realize the twin objectives of cost reduction and reliability improvement for computer programs developed for the U. S. Air Force are reported. The concepts of reliability and automation as they pertain to software are explained. Then, over twenty automated tools and techniques (aids) identified by this investigation are described and categorized. Based on the information reviewed, an assessment of the state of the technology is made. Finally ...


Keywords: Automation, Programming tools, Software reliability, programming techniques

59 Distributed artificial intelligence: an annotated bibliography

 V. Jagannathan, Rajendra Dodhiawala

January 1986 **ACM SIGART Bulletin**, Issue 95

Publisher: ACM Press

Full text available:  pdf(1.51 MB) Additional Information: [full citation](#)



60 Quo Vadimus: computer science in a decade

 J. F. Traub

June 1981 **Communications of the ACM**, Volume 24 Issue 6

Publisher: ACM Press

Full text available:  pdf(2.35 MB) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)



A panel discussion was held during the third biennial meeting of chairmen of Ph.D.-granting computer science departments in June, 1978 at Snowbird, Utah, a meeting sponsored by the Computer Science Board. Invitees from industry and government were also present. A report was prepared from tapes made of the discussion (Department of Computer Science, Carnegie-Mellon University: Report #CMU-CS-80-127, June 1980). It contained all the prepared statements of the panelists, lightly edited, and the ...

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61 [Databsse system approach the management decision support](#)



John J. Donovan

December 1976 **ACM Transactions on Database Systems (TODS)**, Volume 1 Issue 4

Publisher: ACM Press

Full text available: pdf(2.09 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citing](#), [index terms](#)

Traditional intuitive methods of decision-making are no longer adequate to deal with the complex problems faced by the modern policymaker. Thus systems must be developed to provide the information and analysis necessary for the decisions which must be made. These systems are called decision support systems. Although database systems provide a key ingredient to decision support systems, the problems now facing the policymaker are different from those problems to which database systems have b ...

Keywords: database systems, decision support systems, management applications, modeling, networking, relational, virtual machines

62 [National high performance computer technology act: SIGGRAPH and nationl high-tech public policy issues](#)



D. J. Cox

August 1989 **ACM SIGGRAPH Computer Graphics**, Volume 23 Issue 4

Publisher: ACM Press

Full text available: pdf(2.32 MB)

Additional Information: [full citation](#), [index terms](#)

63 [Curriculum recommendations for graduate professional programs in information systems](#)



May 1972 **Communications of the ACM**, Volume 15 Issue 5

Publisher: ACM Press

Full text available: pdf(4.00 MB)

Additional Information: [full citation](#), [references](#), [citing](#)

Keywords: education, information analysis, information systems development, management information systems, management systems, system design, systems analysis

64 High level language programming environments



Marvin Zelkowitz, W. Richards Adrion, Alfred Aho, Daniel Bobrow, Thomas Cheatham, John Cherniavsky, Susan Gerhart, Gordon Lyon, John Nestor, Terry Straeter
August 1981 **ACM SIGSOFT Software Engineering Notes**, Volume 6 Issue 4

Publisher: ACM Press

Full text available: [pdf\(1.07 MB\)](#) Additional Information: [full citation](#)

65 Visualizing real-time multivariate data using preattentive processing



Christopher G. Healey, Kellogg S. Booth, James T. Enns
July 1995 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 5 Issue 3

Publisher: ACM Press

Full text available: [pdf\(2.85 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A new method is presented for visualizing data as they are generated from real-time applications. These techniques allow viewers to perform simple data analysis tasks such as detection of data groups and boundaries, target detection, and estimation. The goal is to do this rapidly and accurately on a dynamic sequence of data frames. Our techniques take advantage of an ability of the human visual system called preattentive processing. Preattentive processing refers to an initial organization ...

Keywords: boundary detection, cognitive psychology, curvature, hue, human vision, icon, multivariate data, preattentive, scientific visualization, target detection, visual interactive simulation

66 Digital control of industrial processes



Cecil L. Smith
September 1970 **ACM Computing Surveys (CSUR)**, Volume 2 Issue 3

Publisher: ACM Press

Full text available: [pdf\(2.11 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

67 The theory of parsing, translation, and compiling



Alfred V. Aho, Jeffrey D. Ullman
January 1972 Book

Publisher: Prentice-Hall, Inc.

Full text available: [pdf\(98.28 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)


From volume 1 Preface (See Front Matter for full Preface)

This book is intended for a one or two semester course in compiling theory at the senior or graduate level. It is a theoretically oriented treatment of a practical subject. Our motivation for making it so is threefold.


(1) In an area as rapidly changing as Computer Science, sound pedagogy demands that

courses emphasize ideas, rather than implementation details. It is our hope that the algorithms and concepts presen ...

68 A radar simulation program for a 1024-processor hypercube

 J. L. Gustafson, R. E. Benner, M. P. Sears, T. D. Sullivan
August 1989 **Proceedings of the 1989 ACM/IEEE conference on Supercomputing Supercomputing '89**

Publisher: ACM Press

Full text available:  [pdf\(1.34 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We have developed a fast parallel version of an existing synthetic aperture radar (SAR) simulation program, SRIM. On a 1024-processor NCUBE hypercube it runs an order of magnitude faster than on a CRAY X-MP or CRAY Y-MP processor. This speed advantage is coupled with an order of magnitude advantage in machine acquisition cost. SRIM is a somewhat large (30,000 lines of Fortran 77) program designed for uniprocessors; its restructuring for a hypercube provides new lessons in the task of alteri ...

69 Essays in computing science

C. A. R. Hoare
January 1989 Book

Publisher: Prentice-Hall, Inc.

Full text available:  [pdf\(20.91 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [review](#)

Charles Antony Richard Hoare is one of the most productive and prolific computer scientists. This volume contains a selection of his published papers. There is a need, as in a Shakespearian Chorus, to offer some apology for what the book manifestly fails to achieve. It is not a complete 'collected works'. Selection between papers of this quality is not easy and, given the book's already considerable size, some difficult decisions as to what to omit have had to be made. Pity the editor weighin ...

70 Data and memory optimization techniques for embedded systems

 P. R. Panda, F. Catthoor, N. D. Dutt, K. Danckaert, E. Brockmeyer, C. Kulkarni, A. Vandercappelle, P. G. Kjeldsberg
April 2001 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**, Volume 6 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(339.91 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a survey of the state-of-the-art techniques used in performing data and memory-related optimizations in embedded systems. The optimizations are targeted directly or indirectly at the memory subsystem, and impact one or more out of three important cost metrics: area, performance, and power dissipation of the resulting implementation. We first examine architecture-independent optimizations in the form of code transoformations. We next cover a broad spectrum of optimizati ...

Keywords: DRAM, SRAM, address generation, allocation, architecture exploration, code transformation, data cache, data optimization, high-level synthesis, memory architecture customization, memory power dissipation, register file, size estimation, survey

71 Writing efficient programs

Jon Louis Bentley
January 1982 Book

Publisher: Prentice-Hall, Inc.

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

The primary task of software engineers is the cost-effective development of maintainable and useful software. There are many secondary problems lurking in that definition. One such problem arises from the term "useful": to be useful in the application at hand, software must often be efficient (that is, use little time or space). The problem we will consider in this book is building efficient software systems.

There are a number of levels at which we may confront the problem of efficient ...

72 Scaling up: a research agenda for software engineering



CORPORATE Computer Science and Technology Board

March 1990 **Communications of the ACM**, Volume 33 Issue 3

Publisher: ACM Press

Full text available: pdf(1.51 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The following excerpts have been gleaned from a report by the Computer Science and Technology Board that summarizes the deliberations of a group of software engineers participating in a CSTB workshop that focused on setting research priorities.

73 Smalltalk-80: the language and its implementation

Adele Goldberg, David Robson

January 1983 Book

Publisher: Addison-Wesley Longman Publishing Co., Inc.

Full text available: pdf(33.56 MB)

Additional Information: [full citation](#), [abstract](#), [cited by](#), [index terms](#), [review](#)

From the Preface (See Front Matter for full Preface)

Advances in the design and production of computer hardware have brought many more people into direct contact with computers. Similar advances in the design and production of computer software are required in order that this increased contact be as rewarding as possible. The Smalltalk-80 system is a result of a decade of research into creating computer software that is appropriate for producing highly functional and interactive ...

74 Coyote: a system for constructing fine-grain configurable communication services



Nina T. Bhatti, Matti A. Hiltunen, Richard D. Schlichting, Wanda Chiu

November 1998 **ACM Transactions on Computer Systems (TOCS)**, Volume 16 Issue 4

Publisher: ACM Press

Full text available: pdf(290.21 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Communication-oriented abstractions such as atomic multicast, group RPC, and protocols for location-independent mobile computing can simplify the development of complex applications built on distributed systems. This article describes Coyote, a system that supports the construction of highly modular and configurable versions of such abstractions. Coyote extends the notion of protocol objects and hierarchical composition found in existing systems with support for finer-grain microprotocol ob ...

Keywords: x-kernal, configurable sevicees, customization, event handlers, event-driven execution, membership, microprotocols, mobile computing, modularity, multicast, protocols, remote procedure call

75 Data Systems Dynamic Simulation: a total system for data system design



assessments and trade studies

James W. Hooper, Dale W. Rowe

January 1978 **ACM SIGSIM Simulation Digest**, Volume 9 Issue 2-4

Publisher: ACM Press

Full text available:  pdf(927.34 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

Data Systems Dynamic Simulation is a simulation system designed to reduce cost and time and increase the confidence and comprehensiveness of Data Systems Simulation. It is designed to simulate large data processing and communications systems from end-to-end or by subsystem. Those features relevant to system timing, control, sizing, personnel support activities, cost and external influences are modeled. Emphasis is placed on ease of use, comprehensive system performance measures, and extensive pos ...

76 Collaborative modeling and negotiation



Dhanesh Samarasan

April 1988 **ACM SIGOIS Bulletin , Proceedings of the ACM SIGOIS and IEEECS TC-OA 1988 conference on Office information systems**, Volume 9 Issue 2-3

Publisher: ACM Press

Full text available:  pdf(1.54 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

New problems in negotiation call for a new framework of solutions. Negotiation management, one such framework, has at its heart the application of computer models and related technology to a collaborative effort at dispute resolution. In this paradigm, negotiation is treated as a communicative and knowledge-intensive group problem-solving process. Easily accessible techniques are being developed for modeling both the process and substance of negotiation. In addition, tools are being designe ...

77 Transitioning from structured analysis to object-oriented design



Lewis Gray

July 1988 **Proceedings of the fifth Washington Ada symposium on Ada WADAS '88**

Publisher: ACM Press

Full text available:  pdf(832.00 KB) Additional Information: [full citation](#), [references](#), [citing](#), [index terms](#)

78 Conference abstracts



January 1977 **Proceedings of the 5th annual ACM computer science conference CSC '77**

Publisher: ACM Press

Full text available:  pdf(3.14 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

One problem in computer program testing arises when errors are found and corrected after a portion of the tests have run properly. How can it be shown that a fix to one area of the code does not adversely affect the execution of another area? What is needed is a quantitative method for assuring that new program modifications do not introduce new errors into the code. This model considers the retest philosophy that every program instruction that could possibly be reached and tested from the ...


79 Draft Proposed: American National Standard—Graphical Kernel System



Technical Committee X3H3 - Computer Graphics

February 1984 **ACM SIGGRAPH Computer Graphics**, Volume 18 Issue S1

Publisher: ACM Press

Full text available:  pdf(16.07 MB) Additional Information: [full citation](#)

80 The new partnership—EDP and management valuable or violent in the 1970's

Robert G. Scherer



July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available:  [pdf\(654.43 KB\)](#)

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121 [Monitoring distributed systems](#)



Jeffrey Joyce, Greg Lomow, Konrad Slind, Brian Unger

March 1987 **ACM Transactions on Computer Systems (TOCS)**, Volume 5 Issue 2

Publisher: ACM Press

Full text available: pdf(2.37 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The monitoring of distributed systems involves the collection, interpretation, and display of information concerning the interactions among concurrently executing processes. This information and its display can support the debugging, testing, performance evaluation, and dynamic documentation of distributed systems. General problems associated with monitoring are outlined in this paper, and the architecture of a general purpose, extensible, distributed monitoring system is presented. Three a ...

122 [The dynamic storage management for increasing a programming language power:](#)



The SIMULA lesson

Karel Babicky

September 1981 **ACM SIGAPL APL Quote Quad , Proceedings of the international conference on APL APL '81**, Volume 12 Issue 1

Publisher: ACM Press

Full text available: pdf(419.98 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The runtime storage management system used by typical SIMULA implementations is outlined. The consequences of its global approach, based on the exclusively dynamic nature of the execution data, are assessed.

123 [A high-level and flexible framework for implementing multiuser user interfaces](#)



Prasun Dewan, Rajiv Choudhary

October 1992 **ACM Transactions on Information Systems (TOIS)**, Volume 10 Issue 4

Publisher: ACM Press

Full text available: pdf(2.82 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We have developed a high-level and flexible framework for supporting the construction of multiuser interfaces. The framework is based on a generalized editing interaction model, which allows users to view programs as active data that can be concurrently edited by

multiple users. It consists of several novel components including a refinement of both the Seeheim UIMS architecture and the distributed graphics architecture that explicitly addresses multiuser interaction; the abstractions of sha ...

Keywords: computer-supported cooperative work, editing, groupware, user interface management systems

124 Trace-driven memory simulation: a survey



Richard A. Uhlig, Trevor N. Mudge
June 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 2

Publisher: ACM Press

Full text available: pdf(636.11 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citings](#), [index terms](#), [review](#)

As the gap between processor and memory speeds continues to widen, methods for evaluating memory system designs before they are implemented in hardware are becoming increasingly important. One such method, trace-driven memory simulation, has been the subject of intense interest among researchers and has, as a result, enjoyed rapid development and substantial improvements during the past decade. This article surveys and analyzes these developments by establishing criteria for evaluating trac ...

Keywords: TLBs, caches, memory management, memory simulation, trace-driven simulation

125 Toward real-time performance benchmarks for Ada



Russell M. Clapp, Louis Duchesneau, Richard A. Volz, Trevor N. Mudge, Timothy Schultze
August 1986 **Communications of the ACM**, Volume 29 Issue 8

Publisher: ACM Press

Full text available: pdf(2.17 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citings](#), [index terms](#), [review](#)

Benchmarks are developed to measure the Ada notion of time, the Ada features believed important to real-time performance, and other time-related features that are not part of the language, but are part of the run-time system; these benchmarks are then applied to the language and run-time system, and the results evaluated.

126 An approach to support automatic generation of user interfaces



Prasun Dewan, Marvin Solomon
October 1990 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 12 Issue 4

Publisher: ACM Press

Full text available: pdf(3.55 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citings](#), [index terms](#)

In traditional interactive programming environments, each application individually manages its interaction with the human user. The result is duplication of effort in implementing user interface code and nonuniform—hence confusing—input conventions. This paper presents an approach to support automatic generation of user interfaces in environments based on algebraic languages. The approach supports the editing model of interaction, which allows a user to view all appli ...

127 A review and analysis of Fortran 8x



April 1988 **ACM SIGNUM Newsletter**, Volume 23 Issue 2

Publisher: ACM Press

Additional Information:

Full text available:  [pdf\(2.07 MB\)](#)


[full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The ANSI Standards Subcommittee X3J3 on Fortran has recently completed a draft proposed standard for the Fortran programming language. The draft proposed standard, known informally as Fortran 8x, is a revision of the current standard X3.9-1978, known informally as Fortran 77. This report is a review of Fortran 8x and consists of a series of six articles. The first article gives a general overview of Fortran 8x. The next three articles give brief discussions of the array facilities; the enhanced ...

128 [Dynamic program behavior under paging](#)

 Gerald H. Fine, Calvin W. Jackson, Paul V. McIsaac
July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available:  [pdf\(654.43 KB\)](#)

Additional Information: [full citation](#)



129 [The analytic design of a dynamic look-ahead and program segmenting system for multiprogrammed computers](#)

 C. V. Ramamoorthy
July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available:  [pdf\(654.43 KB\)](#)


Additional Information: [full citation](#)



130 [Design of the real-time executive for the Univac\(r\) 418 system](#)

 John Michael Williams
January 1966 **Proceedings of the 1966 21st national conference**

Publisher: ACM Press

Full text available:  [pdf\(1.06 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The UNIVAC 418 system hardware The 418 is a small- to medium-scale real-time computer announced to the general public in September of 1964. It is available in two models, identical except for storage speed (two or four microseconds). Storage and registers



131 [Scheduling real-time transactions: a performance evaluation](#)

 Robert K. Abbott, Hector Garcia-Molina
September 1992 **ACM Transactions on Database Systems (TODS)**, Volume 17 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(2.93 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

Keywords: deadlines, locking protocols, real-time systems



132 [Computational Approaches to Image Understanding](#)

 Michael Brady
March 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(10.04 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



133 Special section: Special issue on AI and Database research



Jonathan J. King

October 1983 **ACM SIGART Bulletin**, Issue 86

Publisher: ACM Press

Full text available: [pdf\(3.84 MB\)](#) Additional Information: [full citation](#), [abstract](#)

This collection of research summaries spans a very wide range of interests under the general heading of AI and Database research. In this introduction, I briefly describe the leading areas of interest that emerge from the reports submitted for this issue.

134 Burroughs Corporation: corporate public relations



October 1974 **ACM SIGMICRO Newsletter**, Volume 5 Issue 3

Publisher: ACM Press

Full text available: [pdf\(7.37 MB\)](#) Additional Information: [full citation](#)

135 Office Information Systems and Computer Science



Clarence A. Ellis, Gary J. Nutt

March 1980 **ACM Computing Surveys (CSUR)**, Volume 12 Issue 1

Publisher: ACM Press

Full text available: [pdf\(2.87 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

136 Hyperform: a hypermedia system development environment



Uffe K. Wiil, John J. Leggett

January 1997 **ACM Transactions on Information Systems (TOIS)**, Volume 15 Issue 1

Publisher: ACM Press

Full text available: [pdf\(362.84 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Development of hypermedia systems is a complex matter. The current trend toward open, extensible, and distributed multiuser hypermedia systems adds additional complexity to the development process. As a means of reducing this complexity, there has been an increasing interest in hyperbase management systems that allow hypermedia system developers to abstract from the intricacies and complexity of the hyperbase layer and fully attend to application and user interface issues. Design, developme ...

Keywords: advanced hypermedia system architecture, extensible hyperbase management system, object-oriented extension language

137 Real-time programming in PORTAL



R. Schild, H. Lienhard

April 1980 **ACM SIGPLAN Notices**, Volume 15 Issue 4

Publisher: ACM Press

Full text available: [pdf\(1.13 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#)

138 Distributed operating systems



Andrew S. Tanenbaum, Robbert Van Renesse



December 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 4

Publisher: ACM Press

Full text available: [pdf\(5.49 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Distributed operating systems have many aspects in common with centralized ones, but they also differ in certain ways. This paper is intended as an introduction to distributed operating systems, and especially to current university research about them. After a discussion of what constitutes a distributed operating system and how it is distinguished from a computer network, various key design issues are discussed. Then several examples of current research projects are examined in some detail ...

139 [Programming in an Interactive Environment: the ``Lisp" Experience](#)



Erik Sandewall

March 1978 **ACM Computing Surveys (CSUR)**, Volume 10 Issue 1

Publisher: ACM Press

Full text available: [pdf\(3.25 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

140 [A general description of the national aeronautics and space administration real time computing complex](#)



J. E. Hamlin

January 1964 **Proceedings of the 1964 19th ACM national conference**

Publisher: ACM Press

Full text available: [pdf\(3.12 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Presented is a general description of the Real Time Computer Complex (RTCC), its objectives, and the design concepts being employed in its development. The RTCC is the computing and data processing system being developed for support of all manned spacecraft missions starting with the Gemini Rendezvous. In meeting Gemini requirements, the RTCC is required to handle 10 times the data flow, have 100 times the computing power, and 275 times the capacity of the Mercury System to present display ...

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141 [Sizing and assessing computer design alternatives using simulation](#)



Gary J. Wright, Thomas L. Hannan

December 1978 **Proceedings of the 10th conference on Winter simulation - Volume 2 WSC '78**

Publisher: IEEE Computer Society Press

Full text available: [pdf\(1.05 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes the major phases of a computer system simulation study performed by the Federal Computer Performance Evaluation and Simulation Center for the Federal Aviation Administration. The Central Flow Control System, the system simulated, was in the preliminary design stage when the study was initiated. The study was undertaken to assess the performance of the proposed system, as well as the performance of system design alternatives. This study demonstrates the utility of using ...

142 [An Elementary Discussion of Compiler/Interpreter Writing](#)



R. L. Glass

March 1969 **ACM Computing Surveys (CSUR)**, Volume 1 Issue 1

Publisher: ACM Press

Full text available: [pdf\(1.85 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

143 [Design of self-checking software](#)



S. S. Yau, R. C. Cheung

April 1975 **ACM SIGPLAN Notices , Proceedings of the international conference on Reliable software**, Volume 10 Issue 6

Publisher: ACM Press

Full text available: [pdf\(688.95 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper discusses different techniques for constructing a piece of self-checking software for systems where ultra-reliability is required. Self-checking software can be designed to detect software errors, to locate and to stop the propagation of software errors, to assist in the recovery from errors and to verify the integrity of the system. Self-checking techniques can be implemented in the program to check the function, the control sequence and the data of a process. The functional asp ...

144 Simplified task analysis and design for end-user interface design computing: implications for human/computer interface design (poster session)



V. J. Dubrovsky
January 1989 **ACM SIGCHI Bulletin**, Volume 20 Issue 3

Publisher: ACM Press

Full text available: [pdf\(735.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The paper suggests a structured task analysis and design technique which is based on the "levels-stages" model of a user action. The analysis of existing user tasks employs a top-down strategy. The first stage, dictated by the action model, decomposes the tasks into functional subtasks. The second stage decomposes the subtasks into functionally primitive subtasks according to the structure of the object. At the third stage, the functionally primitive subtasks are described in terms of operations ...

145 Pipeline Architecture



C. V. Ramamoorthy, H. F. Li
March 1977 **ACM Computing Surveys (CSUR)**, Volume 9 Issue 1

Publisher: ACM Press

Full text available: [pdf\(3.53 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

146 SIGART special issue on machine learning



April 1981 **ACM SIGART Bulletin**, Issue 76

Publisher: ACM Press

Full text available: [pdf\(3.33 MB\)](#) Additional Information: [full citation](#), [abstract](#)

Current research on Machine Learning encompasses a diverse set of approaches, and of opinions regarding where the important issues lie. The significant increase of interest and research activity in Machine Learning over the past few years has led us to organize this special issue of SIGART, whose purpose is to provide a snapshot of current research in this field. This issue contains a set of summaries of ongoing research, solicited from the community at large, and received from thirty-five resear ...

147 Real-Time Simulation For Verification Of Tactical Electronic Warfare System



Carmine A. Vaccarino, George Konomos
December 1978 **Proceedings of the 1978 annual conference ACM 78**

Publisher: ACM Press

Full text available: [pdf\(544.45 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In recent years, electronic warfare (EW) systems have become more and more reliant upon digital technology. Usually they include a digital computer with appropriate software programs used to control the various functions of the system, analyze EW signals, and in some cases, command the countering of the same signals. One of the first digital systems, truly software programmable, is the F-15 Tactical Electronics Warfare System (TEWS). The AFAL developed F-15 TEWS Automatic Airborne ...


Keywords: Electronic warfare, Operational flight program, Real-time simulation, Verification

148 Abstracts from the conference on computer graphics and interactive techniques



September 1974 **ACM SIGGRAPH Computer Graphics**, Volume 8 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(1.10 MB\)](#)

Additional Information: [full citation](#)


149 Conception, evolution, and application of functional programming languages



Paul Hudak

September 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(5.19 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The foundations of functional programming languages are examined from both historical and technical perspectives. Their evolution is traced through several critical periods: early work on lambda calculus and combinatory calculus, Lisp, Iswim, FP, ML, and modern functional languages such as Miranda¹ and Haskell. The fundamental premises on which the functional programming methodology stands are critically analyzed with respect to philosophical, theoretical, and pragmatic concerns. ...


150 ARPS: a new real-time computer



Kenneth J. Thurber

October 1976 **ACM SIGARCH Computer Architecture News**, Volume 5 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(1.14 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#)

151 A relational approach to monitoring complex systems



Richard Snodgrass

May 1988 **ACM Transactions on Computer Systems (TOCS)**, Volume 6 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(3.42 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Monitoring is an essential part of many program development tools, and plays a central role in debugging, optimization, status reporting, and reconfiguration. Traditional monitoring techniques are inadequate when monitoring complex systems such as multiprocessors or distributed systems. A new approach is described in which a historical database forms the conceptual basis for the information processed by the monitor. This approach permits advances in specifying the low-level data collection, ...


152 High-level language debugging for concurrent programs



German S. Goldszmidt, Shaula Yemini, Shmuel Katz

November 1990 **ACM Transactions on Computer Systems (TOCS)**, Volume 8 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(2.09 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

An integrated system design for debugging distributed programs written in concurrent high-level languages is described. A variety of user-interface, monitoring, and analysis tools integrated around a uniform process model are provided. Because the tools are language-based, the user does not have to deal with low-level implementation details of distribution and concurrency, and instead can focus on the logic of the program in terms of language-level objects and constructs. The tools provide ...

Keywords: distributed debugging, language independence, portability, temporal logic

153 The space shuttle primary computer system



Alfred Spector, David Gifford

September 1984 **Communications of the ACM**, Volume 27 Issue 9

Publisher: ACM Press

Full text available: pdf(5.34 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: PASS, avionics system, space shuttle

154 Garbage collecting the Internet: a survey of distributed garbage collection



Saleh E. Abdullahi, Graem A. Ringwood

September 1998 **ACM Computing Surveys (CSUR)**, Volume 30 Issue 3

Publisher: ACM Press

Full text available: pdf(337.65 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Internet programming languages such as Java present new challenges to garbage-collection design. The spectrum of garbage-collection schema for linked structures distributed over a network are reviewed here. Distributed garbage collectors are classified first because they evolved from single-address-space collectors. This taxonomy is used as a framework to explore distribution issues: locality of action, communication overhead and indeterministic communication latency.

Keywords: automatic storage reclamation, distributed, distributed file systems, distributed memories, distributed object-oriented management, memory management, network communication, object-oriented databases, reference counting

155 Embedded application design using a real-time OS



David Stepner, Nagarajan Rajan, David Hui

June 1999 **Proceedings of the 36th ACM/IEEE conference on Design automation DAC '99**

Publisher: ACM Press

Full text available: pdf(105.02 KB)

Additional Information: [full citation](#), [appendices and supplements](#), [references](#), [cited by](#), [index terms](#)

156 Scheduling techniques for reducing processor energy use in MacOS



Jacob R. Lorch, Alan Jay Smith

October 1997 **Wireless Networks**, Volume 3 Issue 5

Publisher: Kluwer Academic Publishers

Full text available: pdf(286.90 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The CPU is one of the major power consumers in a portable computer, and considerable power can be saved by turning off the CPU when it is not doing useful work. In Apple's MacOS, however, idle time is often converted to busy waiting, and generally it is very hard to tell when no useful computation is occurring. In this paper, we suggest several heuristic techniques for identifying this condition, and for temporarily putting the CPU in a low-power state. These techniques include turning off ...

157 WISR'92: fifth annual workshop in software reuse: working group reports



Martin Griss, Will Tracz

April 1993 **ACM SIGSOFT Software Engineering Notes**, Volume 18 Issue 2



Publisher: ACM Press

Full text available: pdf(1.08 MB) Additional Information: [full citation](#), [citations](#), [index terms](#)

158 [A real-time error correcting data transmission system treated as a Markov process](#)



Frank T. Kuhn

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB) Additional Information: [full citation](#)

159 [Design of the real-time executive for the Univac 418 system](#)



John Michael Williams

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB) Additional Information: [full citation](#)

160 [Analyzing a real time system](#)



Allen Weingarten

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB) Additional Information: [full citation](#)

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161 [A real time priority scheduler](#)



Karl Ramsay, Jon C. Strauss

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: [pdf\(654.43 KB\)](#)

[Additional Information: full citation](#)



162 [State table analysis of programs in an ALGOL-like language](#)



David L. Parnas

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: [pdf\(654.43 KB\)](#)

[Additional Information: full citation](#)



163 [On an automated method of symbolically analyzing times of computer programs](#)



Paul Hamburger

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: [pdf\(654.43 KB\)](#)

[Additional Information: full citation](#)



164 [On the automatic simplification of source-language programs](#)



Ellen R. Clark

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: [pdf\(654.43 KB\)](#)

[Additional Information: full citation](#)



165 Symbolic processing of source language programs



Mark Halpern

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB)

Additional Information: [full citation](#)

166 Program structures for the multiprogramming environment



Arthur M. Rosenberg

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB)

Additional Information: [full citation](#)

167 Automated facilities layout program



J. Seehof, W. Evans, J. Friederichs, J. Quigley

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB)

Additional Information: [full citation](#)

168 A terminal operated production program (TOPP) system



R. Hedger, A. G. Pontius, J. M. Seehof, G. Benson

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB)

Additional Information: [full citation](#)

169 Functional design of a generalized vehicle flight simulation program



Vilas D. Henderson

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB)

Additional Information: [full citation](#)

170 An information system for the coordination of program design



L. Bernstein, F. E. Slojowski

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: pdf(654.43 KB)

Additional Information: [full citation](#)

171 Computer-assisted instruction: specification of attributes for CAI programs and



programmers

Gloria M. Silvern, Leonard C. Silvern

July 1966 **Communications of the ACM**, Volume 9 Issue 7

Publisher: ACM Press

Full text available: [pdf\(654.43 KB\)](#) Additional Information: [full citation](#)



172 Cache Memories



Alan Jay Smith

September 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 3

Publisher: ACM Press

Full text available: [pdf\(4.61 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



173 Contemporary software development environments



William Howden, Paul Cohen, Al Irvine, James King, Patricia Powell, William Riddle, Leon Stucki, Leonard Tripp

August 1981 **ACM SIGSOFT Software Engineering Notes**, Volume 6 Issue 4

Publisher: ACM Press

Full text available: [pdf\(804.17 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#)



174 Managing Ada development risk in a non-Ada-based workstation environment



Kourosh R. Dinyari, Thomas M. Johndrew, Kenneth J. Lamarche

December 1990 **Proceedings of the conference on TRI-ADA '90 TRI-Ada '90**

Publisher: ACM Press

Full text available: [pdf\(939.67 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

There is increasing demand for systems with user friendly interfaces to complex automation. Workstations are especially well-suited for these complex systems because interactive graphics coupled with multiprocessing capability is offered in one small platform. Unfortunately, the current available graphics workstations are essentially a hostile environment for Ada developers. However, a successful Ada implementation within project cost and schedule constraints can be achieved when the proble ...



175 Graphic time-sharing with real-time data bases



Jesse B. Hillman

August 1969 **Proceedings of the 1969 24th national conference**

Publisher: ACM Press

Full text available: [pdf\(770.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This system is being developed to process flight test data for the McDonnell-Douglas Corporation to significantly reduce flight test development and certification time and to reduce data processing costs. It is a time-sharing system using graphic cathode ray tube terminals. The system consists of nine processors: a Sigma 7 central processing unit, three general-purpose input/output processors, two special telemetry decommutator channels and three Sigma 2 central processor units. < ...



176 Data compression




Debra A. Lelewer, Daniel S. Hirschberg

September 1987 **ACM Computing Surveys (CSUR)**, Volume 19 Issue 3

Publisher: ACM Press



Full text available:  [pdf\(3.61 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This paper surveys a variety of data compression methods spanning almost 40 years of research, from the work of Shannon, Fano, and Huffman in the late 1940s to a technique developed in 1986. The aim of data compression is to reduce redundancy in stored or communicated data, thus increasing effective data density. Data compression has important application in the areas of file storage and distributed systems. Concepts from information theory as they relate to the goals and evaluation of data ...

177 [Surfing the net for software engineering notes](#)



Chuck Howell

January 1995 **ACM SIGSOFT Software Engineering Notes**, Volume 20 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(574.28 KB\)](#) Additional Information: [full citation](#), [index terms](#)

178 [Integrating pointer variables into one-way constraint models](#)



Brad Vander Zanden, Brad A. Myers, Dario A. Giuse, Pedro Szekely

June 1994 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 1 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(3.71 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Pointer variables have long been considered useful for constructing and manipulating data structures in traditional programming languages. This article discusses how pointer variables can be integrated into one-way constraint models and indicates how these constraints can be usefully employed in user interfaces. Pointer variables allow constraints to model a wide array of dynamic application behavior, simplify the implementation of structured objects and demonstrational systems, and improve ...

Keywords: Garnet, constraints, development tools, incremental algorithms

179 [A practical approach to the evaluation of microcode systems](#)



R. E. Skibbe

December 1985 **ACM SIGMICRO Newsletter , Proceedings of the 18th annual workshop on Microprogramming MICRO 18**, Volume 16 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(1.06 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a microcode-evaluation methodology. The supporting test tools were developed by the IBM General Products Division in Tucson, Arizona, to allow effective and comprehensive evaluations of microcode systems. The methodology has been used successfully by the Tucson Test Laboratory (TTL) during the past several years. The evaluation methodology is characterized by an integrated application of static and dynamic analysis techniques. These two modes of analysis are ...


180 [Abstracts from the 1977 SIGMETRICS/CMG VIII conference](#)



Robert L. Morrison

April 1977 **ACM SIGMETRICS Performance Evaluation Review**, Volume 6 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(850.76 KB\)](#) Additional Information: [full citation](#)

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181 [Final report of the ANSI/X3/SPARC DBS-SG relational database task group](#)



July 1982 **ACM SIGMOD Record**, Volume 12 Issue 4

Publisher: ACM Press

Full text available: [pdf\(4.69 MB\)](#) Additional Information: [full citation](#), [citations](#)

182 [Computer-Aided Design, Manufacturing, Assembly and Test \(CADMAT\)](#)



F. C. Bergsten

June 1981 **Proceedings of the 18th conference on Design automation DAC '81**

Publisher: IEEE Press

Full text available: [pdf\(763.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This paper describes an integrated Computer-Aided Design, Manufacturing, Assembly and Test System to achieve increased productivity and quality. The term CADMAT which encompasses Automated Test also implies the integration of all design automated and computer augmented processes throughout the product and business organizations. In the design and test phase of electronics, Interactive Graphiss (IAG), verification, automated board layout, and automatic test vector generation are discussed. I ...

183 [Dynamic network reconfiguration support for mobile computers](#)



Jon Inouye, Jim Binkley, Jonathan Walpole

September 1997 **Proceedings of the 3rd annual ACM/IEEE international conference on Mobile computing and networking MobiCom '97**

Publisher: ACM Press

Full text available: [pdf\(1.60 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

184 [Hardware/software solutions for scientific visualization at large research laboratories](#)



L. Cook, G. Bancroft, K. Hussey, J. Dragon, W. Johnston

July 1989 **ACM SIGGRAPH Computer Graphics, ACM SIGGRAPH 89 Panel**


Proceedings SIGGRAPH '89, Volume 23 Issue 5

Publisher: ACM Press

Full text available: [pdf\(4.41 MB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Good morning. My name is Linnea Cook from Lawrence Livermore Laboratory. This session is a panel session on hardware and software solutions for scientific visualization that are being pursued at some of the large research laboratories in the United States. This panel originated because I saw and other people at Los Alamos saw that we were pursuing different avenues of -- and quite vehemently -- pursuing different avenues of meeting our graphics needs. In Livermore in particular there was real st ...

185 Retargetable Compiler Code Generation

 Mahadevan Ganapathi, Charles N. Fischer, John L. Hennessy
December 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 4

Publisher: ACM Press

Full text available:  [pdf\(1.93 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



186 Open-vocabulary speech indexing for voice and video mail retrieval

 M. G. Brown, J. T. Foote, G. J. F. Jones, K. Spärck Jones, S. J. Young
February 1997 **Proceedings of the fourth ACM international conference on Multimedia MULTIMEDIA '96**

Publisher: ACM Press

Full text available:  [pdf\(1.82 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



Keywords: audio indexing, browsing, content-based retrieval, information retrieval, speech recognition, word spotting

187 Effective software systems for scientific data visualization

 L. A. Treinish, J. D. Foley, W. J. Campbell, R. B. Habor, R. F. Gurwitz
July 1989 **ACM SIGGRAPH Computer Graphics , ACM SIGGRAPH 89 Panel Proceedings SIGGRAPH '89**, Volume 23 Issue 5

Publisher: ACM Press

Full text available:  [pdf\(5.42 MB\)](#) Additional Information: [full citation](#), [citations](#), [index terms](#)



188 The simulation of time sharing systems

 Norman R. Nielsen
July 1967 **Communications of the ACM**, Volume 10 Issue 7

Publisher: ACM Press

Full text available:  [pdf\(2.23 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The development of new large scale time-sharing systems has raised a number of problems for computation center management. Not only is it necessary to develop an appropriate hardware configuration for these systems, but appropriate software adjustments must be made. Unfortunately, these systems often do not respond to changes in the manner that intuition would suggest, and there are few guides to assist in the analysis of performance characteristics. The development of a comprehensive simul ...



189 Enhanced operational semantics: a tool for describing and analyzing concurrent systems

 Pierpaolo Degano, Corrado Priami
June 2001 **ACM Computing Surveys (CSUR)**, Volume 33 Issue 2



Publisher: ACM Press

Full text available:  [pdf\(355.24 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This article surveys the definition and application of an enhancement of structural operational semantics in the field of concurrent systems, and also addresses issues of distribution and mobility of code. The focus is on how enriching the labels of transitions with encodings of their deduction trees is sufficient to derive qualitative and quantitative information on the systems in hand simply by relabeling the transitions of a unique concrete model.

Keywords: parametric models, process algebra

190 [Functionally-Oriented System Simulation for computer aided design of software/hardware systems](#)



Gregory M. Scallan, James A. Grupé

January 1978 **ACM SIGSIM Simulation Digest**, Volume 9 Issue 2-4

Publisher: ACM Press

Full text available:  [pdf\(814.16 KB\)](#) Additional Information: [full citation](#), [abstract](#)

Functionally Oriented System Simulation (FOSS) is applicable to the design and development of real-time computer systems. FOSS assists the system designer by integrating and verifying a model of the system software and hardware in a simulation. With FOSS, vague preliminary concepts can be refined to evolve formal software specifications and derive hardware requirements for a preferred design solution. FOSS incorporates a formal specification language and a translator (pre-processor) to generate ...



191 [Reusable software components](#)



Trudy Levine

November 1994 **ACM SIGAda Ada Letters**, Volume XIV Issue 6

Publisher: ACM Press

Full text available:  [pdf\(950.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Once a year, we publish a "theme" column that includes the viewpoints of leading practitioners on a specific reuse theme, and suggest references for those who wish to study the topic in more depth. Unfortunately, a page was omitted in the publication of our column on Reuse Education. We repeat that column, with an update on the Third Annual Workshop on Reuse Education and Training.



192 [Knowledge management for best practices](#)



Daniel E. O'Leary, Peter Selfridge

November 2000 **Communications of the ACM**

Publisher: ACM Press

Full text available:  [pdf\(794.28 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



193 [The Spring kernel: a new paradigm for real-time operating systems](#)



J. A. Stankovic, K. Ramamritham

July 1989 **ACM SIGOPS Operating Systems Review**, Volume 23 Issue 3

Publisher: ACM Press

Full text available:  [pdf\(1.17 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Next generation real-time systems will require greater flexibility and predictability than is commonly found in today's systems. These future systems include the space station,



integrated vision/robotics/AI systems, collections of humans/robots coordinating to achieve common objectives (usually in hazardous environments such as undersea exploration or chemical plants), and various command and control applications. The Spring kernel is a research oriented kernel designed to form the basis of a fl ...

194 A general explanation component for conceptual modeling in CASE environments



Jon Atle Gulla

July 1996 **ACM Transactions on Information Systems (TOIS)**, Volume 14 Issue 3

Publisher: ACM Press

Full text available: [pdf\(313.25 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In information systems engineering, conceptual models are constructed to assess existing information systems and work out requirements for new ones. As these models serve as a means for communication between customers and developers, it is paramount that both parties understand the models, as well as that the models form a proper basis for the subsequent design and implementation of the systems. New CASE environments are now experimenting with formal modeling languages and various technique ...

Keywords: conceptual modeling, explanation generation, help systems, linguistics, paraphrasing, requirements engineering

195 The seventh annual workshop on microprogramming



October 1974 **ACM SIGMICRO Newsletter**, Volume 5 Issue 3

Publisher: ACM Press

Full text available: [pdf\(1.14 MB\)](#) Additional Information: [full citation](#)

196 A window based visual debugger for a real time Ada tasking environment



Jeff Gilles, Ray Ford

July 1988 **Proceedings of the fifth Washington Ada symposium on Ada WADAS '88**

Publisher: ACM Press

Full text available: [pdf\(922.10 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

197 MarketNet: market-based protection of information systems



Y. Yemini, A. Dailianas, D. Florissi, G. Huberman

October 1998 **Proceedings of the first international conference on Information and computation economies ICE '98**

Publisher: ACM Press

Full text available: [pdf\(1.14 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

198 IFIP Congress-62, Munich, Germany, August 27-September 1, 1962: Abstracts of papers



June 1962 **Communications of the ACM**, Volume 5 Issue 6

Publisher: ACM Press

Full text available: [pdf\(1.35 MB\)](#) Additional Information: [full citation](#)

199 Experiments in SR with different upcall program structures



M. Stella Atkins

November 1988 **ACM Transactions on Computer Systems (TOCS)**, Volume 6 Issue 4

Publisher: ACM Press

Full text available: pdf(2.01 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper explores program designs for layered systems such as communication protocols and server/client systems that do not exhibit a strict hierarchy in their control flow. Clark has proposed structuring such systems, where both upward and downward control flow are required, to use efficient synchronous procedure calls between the layers whenever possible. The term upcall is used by Clark to describe this synchronous upward communication from server to client.

200 Research in music and artificial intelligence



Curtis Roads

June 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 2

Publisher: ACM Press

Full text available: pdf(2.72 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Although the boundaries of artificial intelligence (AI) remain elusive, computers can now perform musical tasks that were formerly associated exclusively with naturally intelligent musicians. After a historical note, this paper sermonizes on the need for AI techniques in four areas of musical research: composition, performance, music theory, and digital sound processing. The next part surveys recent work involving AI and music. The discussion concentrates on applications in the four areas o ...

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